

REMARKS

Claims 7, 8, 10, 11, 13, 16, 20, 28, and 34 are amended, no claims are canceled or added; as a result, claims 3, 5, 7-42, and 65 remain pending in this application.

Information Disclosure Statement

Applicant submitted a Supplemental Information Disclosure Statement with a 1449 Form on December 10, 2003. Applicant respectfully requests that an initialed copy of the 1449 Form be returned to Applicants' Representatives to indicate that the cited references have been considered by the Examiner.

Specification Amendment

Applicant amends the specification to correct an obvious typographical error in the application. No new matter is proposed. Approval and entry of the specification amendment is requested.

Claim Objections

Claims 10, 11, and 16 were objected to because of informalities. These claims are amended as suggested by the examiner and are not amended in response to any substantive issue under the Patent Act. Withdrawal of the objections is requested.

Reservation of the Right to Swear Behind References

Applicant maintains its right to swear behind any references which are cited in a rejection under 35 U.S.C. §§102(a), 102(e), 103/102(a), and 103/102(e). Statements distinguishing the claimed subject matter over the cited references are not to be interpreted as admissions that the references are prior art.

§103 Rejection of the Claims

Claims 3, 5, 7-42, and 65 were rejected under 35 USC § 103(a) as being unpatentable over Tan et al. (U.S. Patent No. 6,372,622) in view of Matsuda et al. (U.S. Patent No. 6,403,481). Claims 13-42 were rejected under 35 USC § 103(a) as being unpatentable over Tan

et al. in view of Matsuda et al. and Simpson (U.S. Patent No. 6,197,688). Applicant respectfully traverses.

Applicant respectfully submits that the Office Action did not make out a *prima facie* case of obviousness in that even if combined, the cited references fail to teach or suggest all of the elements of applicant's claimed invention.

Independent claim 7 recites, in part, "depositing a seed layer including a thin film of Palladium (Pd) or Copper (Cu) having a thickness of less than 15 nanometers (nm) on a semiconductor substrate. Applicant can not find this feature in Tan or Matsuda. In fact, it appears that Tan and Matsuda teach away from the method recited in claim 7. Tan states that copper stud 30 is grown from a seed layer contained in barrier layer 14 (col. 4, lines 1-2) and barrier layer 14 is formed over passivation layer 11 and bond pads 12 (col. 3, lines 39-40 and Fig. 3). Matsuda likewise states that tantalum nitride film 12 (Fig. 1) or titanium nitride file 55 (Fig. 7A) is formed then a copper film 13 or 56 is grown thereover. Applicant submits that claim 7 and claims 4, 5, and 65 depending therefrom are allowable.

Independent claim 8 recites, in part, "depositing a seed layer including a thin film of Palladium (Pd) or Copper (Cu) having a discontinuous island structure on a semiconductor substrate using a sputtering deposition technique." Applicant submits that claim 8 and claims 9-12 depending therefrom are allowable for at least substantially similar reasons as stated above with regard to claim 7.

Independent claim 13 recites, in part, "depositing a first seed layer including a thin film of Palladium (Pd) or Copper (Cu) on a semiconductor substrate." Applicant submits that claim 13 and claims 14-19 depending therefrom are allowable for at least substantially similar reasons as stated above with regard to claim 7.

Independent claim 20 recites, in part, "depositing a first seed layer on a semiconductor substrate." Applicant submits that claim 20 and claims 21-27 depending therefrom are allowable for at least substantially similar reasons as stated above with regard to claim 7.

Independent claim 28 recites, in part, "depositing a first seed layer including a thin film of Palladium (Pd) or Copper (Cu) on a semiconductor substrate using a physical vapor deposition process." Applicant submits that claim 28 and claims 29-33 depending therefrom are allowable for at least substantially similar reasons as stated above with regard to claim 7.

Independent claim 34 recites, in part, "depositing a first seed layer including a thin film of Palladium (Pd) or Copper (Cu) on a semiconductor substrate." Applicant submits that claim 34 and claims 35-42 depending therefrom are allowable for at least substantially similar reasons as stated above with regard to claim 7.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

KIE Y. AHN ET AL.

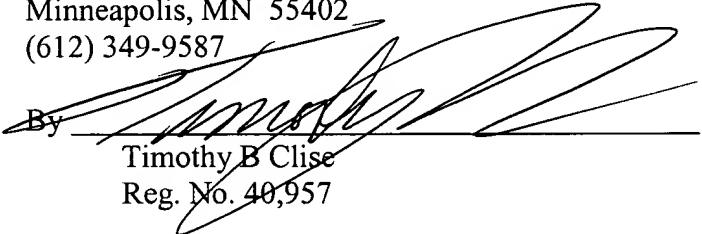
By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 349-9587

Date

22 April '04

By


Timothy B Clise
Reg. No. 40,957

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 22 day of April, 2004.

Name

Tim Kohut

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